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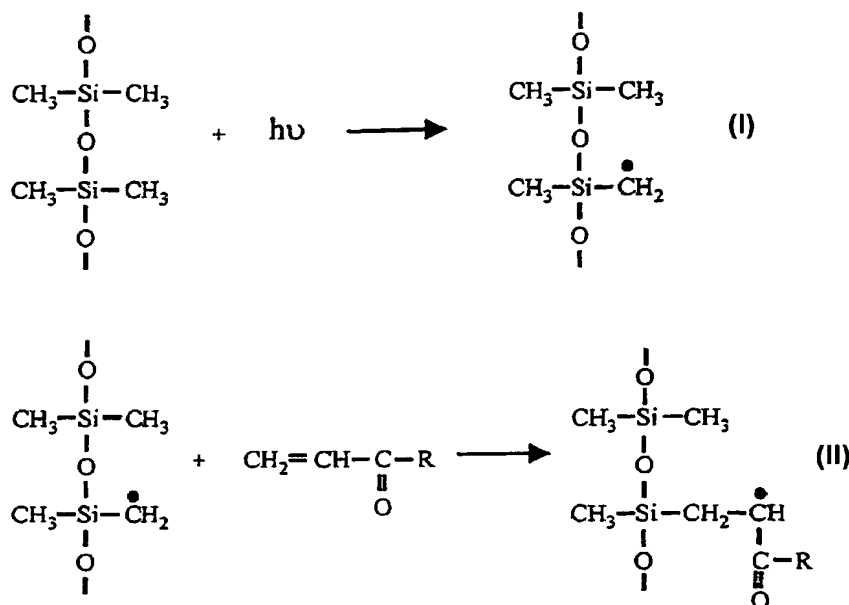
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[Continued on next page]

(54) Title: **CHEMICAL MODIFICATIONS TO POLYMER SURFACES AND THE APPLICATION OF POLYMER GRAFTING TO BIOMATERIALS**



R: -OH                      Acrylic Acid (AA)  
      -NH<sub>2</sub>                  Acrylamide (AM)  
      -N(CH<sub>3</sub>)<sub>2</sub>             Dimethylacrylamide (DMA)  
      -OCH<sub>2</sub>CH<sub>2</sub>OH        2-Hydroxyethylacrylate (HEA)  
      -O(CH<sub>2</sub>CH<sub>2</sub>O)<sub>n</sub>CH<sub>3</sub>   PEG monomethoxylacrylate (PEG)

(57) Abstract: Polymer-based biomaterials are popular due to ease of fabrication and low costs. However, many polymer substrates have undesirable surface properties. The invention provides a procedure to covalently apply a graft polymer to the surface of a polymer substrate by ultraviolet graft polymerization. The graft polymer is formed from monomers such as PEG, AA, monomethoxy acrylate PEG, HEMA, or DMA. Also, mixed monomers may be used to create the graft and the surface properties of the graft may be tailored for different properties, including hydrophobicity, friction coefficient, electroosmotic mobilities and electrophoretic separations. The invention has particular utility in tailoring surface chemistries in ocular lenses and polymer microdevices.



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International Application No

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**A. CLASSIFICATION OF SUBJECT MATTER**  
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According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

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Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 378 512 A (CIBA GEIGY AG) 18 July 1990 (1990-07-18)	1-18
Y	page 2, line 36 -page 3, line 15 page 3, line 30 -page 4, line 19 page 4, line 48 -page 7, line 57; claims; example 15	19-30
Y	COOPER MC DONALD J ET AL: "FABRICATION OF MICROFLUIDIC SYSTEMS IN POLY(DIMETHYLSILOXANE)" ELECTROPHORESIS, WEINHEIM, DE, vol. 21, 2000, pages 27-40, XP002909207 ISSN: 0173-0835 cited in the application page 29, left-hand column, last paragraph -page 33, left-hand column, paragraph 1 page 38, left-hand column, last paragraph -page 39, left-hand column, paragraph 1	19-30

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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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# INTERNATIONAL SEARCH REPORT

International Application No

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